The Cornell Countryman

Vol. 8 OCTOBER, 1910 No. 1

A FEW WORDS FROM DEAN BAILEY

WHAT impresses me most about the farmer folk as I come back to them after a year's diverting absence, is their growing sense of occupation-pride and their enlarging feeling that they are to play some new and more important part in the progress of the world.

The effort to subsist has made the farmer self-centered and self-sufficient. He has not been obliged to knock elbows with numberless fellowmen. He has shut himself up largely to his own farm, and has occupied an attitude of resistance to all encroachments of organized and rapacious interests.

But now he is beginning to make money, and he looks beyond mere subsistence. A new and real brotherhood is a growth in the world, expressing itself strongly just now in politics as it has but recently expressed itself anew in religion. The disadvantaged and forgotten man has been discovered, and his natural rights are being safeguarded to him. The farmer has caught a vision of a new time, and the world suddenly has a fresh meaning.

The student of agriculture may not formulate his outlook, even to himself; but as he is naturally an idealist (he would not seek college if he were not an idealist), he is necessarily looking to newer and larger opportunities in the open country than have formerly existed there. He would first make a good living, and would develop a farm with as good workmanlike and business qualities as may be found in the best manufacturing; but he would never be satisfied with this alone. He feels that some fine expression of himself is possible on a farm; and, although he may not know it, he is always inclined to place his best endeavor in those subjects and with those men that have the strongest human qualities. He is sure that he is going really to live,—to live himself out to the full and to find something in the common day that appeals to him with overmastering power.

I can ask no more of any student than that he express himself completely on his farm. He should be able to discover himself more fully there than any person expresses himself in a poem or a book or a painting, or in a work of engineering skill. He will add his forward outlook to the sterling and sturdy qualities of the farming people. It will be a great thing to see the open country when all the multitude of students shall have worked their personalities into it.

MIXING CONCRETE ON THE FARM

From an article prepared under direction of The Association of American Portland Cement Manufacturers.

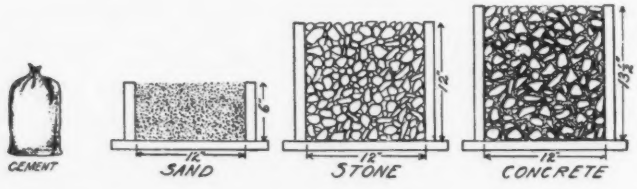
ON account of its cheapness, uniformity, and quick development of strength, the only cement practically used at present is the kind called "Portland." There are almost as many brands of Portland cement as there are of wheat flour. For farm work choose some brand guaranteed by the local dealer to meet the standard specifications of the American Society for Testing Materials, which standards are approved by the National Government.

Cement takes water so easily that care must be exercised in storing it. Upon the regular floor of a good building place timbers close together, as a support for a false floor, upon which the cement should be piled. Keep it covered with canvas or roofing paper. Cement once wet sets up and is unfit for use. However, lumps due to pressure in the store-house must not be mistaken for set-up cement. Such lumps are easily crumbled and may then be used.

Concrete is a mixture of Portland cement and particles of stone. The stone should vary in size from pieces one inch in diameter to sand grains. By so grading the stone, the smaller particles fit in the spaces between the larger pieces, thereby producing the most compact and the strongest mixture.

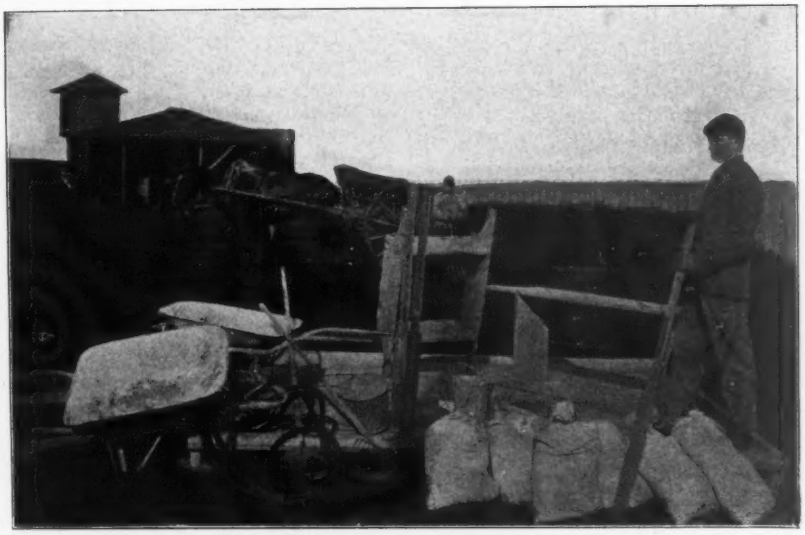
The best stone for crushed rock is one which is clean, hard, and breaks with sharp angles. Trap, granite, and hard limestone are among the best; the use of shale, slate, and soft limestones and sandstones should be avoided. The crushed rock should be screened on a one-fourth-inch screen to remove the fine particles. These small particles should be considered as sand, and if insufficient in quantity to make the proper proportion of the concrete, enough sand should be added to them to produce the required amount.

Gravel well graded in sizes is at least equally as good for concrete as crushed stone. Bank-run gravel, just as dug from the pit, seldom runs even and rarely has the right proportion of sand and pebbles for making the best concrete. The mixture most suitable has one part sand to two parts gravel, measured by volume, in which all sizes passing through a one-inch mesh screen and retained on a one-fourth-inch screen are considered gravel. As there is usually too much sand for the gravel, it is both advisable and profitable to screen the material and to remix them in the proper proportions. Gravel should have no rotten stone and should be clean, so that the cement may adhere to it tightly.



With dirty sand, no amount of cement will make strong concrete. Generally, sand is clean, but if not, it can easily be washed by playing a hose or flushing water upon thin layers of sand placed on a tight-jointed inclined wooden board. In size of grain it should vary uniformly from fine to coarse. All particles passing a one-fourth-inch screen may be considered sand.

Any good-tasting drinking-water is suitable for concrete.



The tools and equipment necessary for making concrete in moderate quantities are already at hand on a well conducted farm, or will be useful afterward for other purposes.

The list: 2 square pointed "paddy" shovels, No. 3; 1 round pointed tiling shovel or 1 garden spade; 1 heavy garden rake; 1 sprinkling can or bucket or 1 spray nozzle for hose; 1 water barrel or 1 length of hose; 1 sidewalk tamper or home-made wooden tamper; 1 sand screen made of a section of one-fourth-inch wire mesh nailed to a wooden frame; 1 measuring box or frame; 1 mixing board; 2 wheelbarrows with steel trays.

For farm work the following proportions are most suitable:

For concrete necessarily waterproof, 1 : 2 : 4 or 1 : 4

For all other ordinary purposes, 1 : 2½ : 5 or 1 : 5

Such proportions of three parts, as 1 : 2 : 4, indicate that the concrete is to be mixed 1 part cement to 2 parts sand to 4 parts screened gravel or crushed rock; and 1 : 4 that it is to be mixed 1 part cement to 4 parts bank-run gravel.

Measurement by counting shovelfuls is poor and uncertain practice. To avoid splitting of bags of cement, make as the unit of measurement one cubic foot, the amount of loose cement contained in one cement bag. Such measurements are made a very easy matter by gauging the wheelbarrows. For this purpose use a bottomless box holding one cubic foot. A shallow bottomless frame is also a convenient means of measuring. Such a frame, when set on the mixing

FOR TWO-BAG BATCH

Proportions.	Sacks of cement.	Framefuls of sand.	Framefuls of crushed rock or screened gravel.	Clear Dimensions of Frame.
1:2:4 or 1:4	2	1*	2	o′6″x2′8″x3′o″
1:2½:5 or 1:5*	2	1*	2	o′6″x2′8″x4′o″

*For bank-run gravel use the same table, but no sand is required except that which is already in the gravel.

board and filled, should contain the *full* amount of sand or *one-half* the quantity of gravel, or crushed rock, required for one batch of concrete.

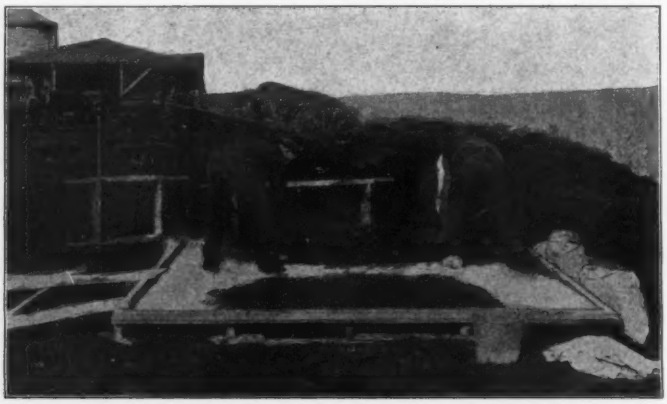
The size of the batch is dependent upon the amount of help and the dimensions of the mixing board or platform. For work of ordinary size, sufficient room will be had on a "two-men board," 8 x 14 feet, framed solidly and covered with one-inch stuff with tight-joints the short way of the board. A wooden strip nailed around the outer edges will prevent the loss of liquid cement. For such a board and the proportions designated above, make the bottomless frame of the clear dimensions given in the table.

All the materials (slightly more than the computed quantities) should be on hand before beginning the work. They can often be hauled at odd times. The sand and gravel or stone should be piled so as:

To cause the least amount of wheeling; to make the mixing most convenient to the water supply; to allow room for the future location of the mixing board.

If the gravel does not need screening, place a bottomless frame, previously described for a 1 : 4 mixture on the mixing board and fill it level full with gravel. Lift the frame, spread the gravel slightly with the garden rake, and upon it distribute evenly two bags (the full amount) of cement. Set the frame upon the leveled surface of cement and gravel and again fill it in the same way.

Remove the frame and spread the entire mass by dragging it back and forth with the rake. Two men, opposite each other, then turn the batch with the square pointed shovels. Again use the rake. Keep turning until the cement no longer shows in streaks, until the mixture has a uniform color. Throw up the ragged edges and, with sprinkling can or hose with spray nozzle, apply water in quantity, according to special directions given later for each particular kind of construction. Turn again and add so much more water as may be required. If dry streaks are still evident, continue the turning until they disappear. With wheelbarrows, quickly remove the concrete and immediately use it in the work.



If crushed rock or screened gravel is to be used, fill the bottomless frame with sand and distribute upon it two bags of cement. Drag the materials back and forth with the garden rake, then turn, as described above, until the mass has a uniform color. Spread the mixture so that two framefuls of crushed rock or screened gravel may be placed upon it. Wet the mass and turn as for bank-run gravel until each stone is coated with cement mortar. Remove as for the gravel concrete

THE PLACE OF THE TRAINED MAN IN AGRICULTURE

By A. R. Mann

Secretary of the New York State College of Agriculture

THE progressive American farmer has created for himself a large number of agencies to help him solve his problems and to maintain the standard and control the disposal of his products. These agencies, coupled with the proverbial ingenuity of the man brought up on the land, have wrought remarkable changes in our farming in a few generations that we cannot realize except as we compare conditions over a period of years. It would be interesting if we could list the advancements made in the past one hundred years. A person who lived in Washington's time, a century and a quarter ago, did not know why tillage makes the plant to thrive; did not understand the principles involved in enriching the land; the practice of tile-draining; a good moldboard plow; the use of farm machinery; the principles of animal-breeding and plant-breeding; how plants get their food; the nature of contagious disease; the commercial use of greenhouses; commercial fruit-growing; the canning of fruits; agricultural newspapers; agricultural schools; experiment stations. Washington had never seen a silo, or a mowing machine, or a wire fence or a grain drill or a can of tomatoes. He did not know why trees blight, or milk sours; why the butter does not "come"; what plowing accomplishes for the soil. He had never heard of potash, balanced rations, commercial fertilizers, pollination, cover-crops, leguminous plants or clean milk. He lived in the age of homespun, before the cotton gin and other great agricultural machines. He knew nothing of modern methods of transportation and communication. Yet all these things are commonplaces among farmers today who speak of them and deal with them as matters of common knowledge and practice. And today we are looking forward with the feeling that we have just begun to know and that the great wealth of nature-knowledge and achievement lies still beyond, untouched.

We may well ask what has caused these great changes? Much is the result of the individual farmer's own genius and aptness for meeting new and exacting conditions; much is the product of educational and investigational agencies provided with the time and means to study agricultural problems in a broad way, under varying conditions of soil and climate, such as the individual farmer with the means at his command cannot do. And the most successful farmers today are the ones who are drawing most heavily on these agencies and who are interpreting their discoveries into their own farm practices. These changes have largely come about through the efforts of the educated and trained man, and the thinking and enquiring farmer.

Like every other great human interest, farming has had its constructive geniuses, men over and above the general run of their associates who have been leaders in their communities, in their states and in the nation. These have been trained men. In the not very remote past most of these leaders were self-trained or self-made, and achieved their success just because of the way they were made up—their ability to comprehend situations and to reason out what was lacking. Today, farm boys and girls have opportunity for training that the older folks knew nothing of when they were young. Our facts about farming are now in teachable form, so that they can be discussed from the platform, through the press, through printed books and in the class room, laboratory and on

the farm. Young men today have not only the advantage of their father's life-time experience, but have accessible the best of experience of the best farmers everywhere. Time was when a young man who wanted to fit himself for farming as a life occupation had little opportunity to do so compared with the young man who wanted to go into other business. Farming is the last of the great industries to be brought into our educational system and given equal attention and equal dignity as a field for men's life efforts. Agriculture had a hard fight for recognition, and students studying agriculture in colleges were looked down upon. Today, in New York State the College of Agriculture has a prominent place among the colleges in Cornell University, and its students receive equal respect with others. The long struggle for recognition has finally been won, and farmers are coming into their own educationally. As a result, the entire nation is alive to the opportunities in agriculture, and the city has turned its face toward the country for the door of opportunity.

The wealth of opportunity in farming for the young man today is the outcome of the hard work and unpromising struggles of our fathers and grandfathers who cut down the trees, dug out the stumps, carried off the stone, cleared the fields and made farms out of the wilderness. It is well for us to stop and consider what we owe to the older farmers for their relentless perseverance in a new country against big odds, and their ability to produce and distribute the food supply demanded by a growing nation. If the older farmers with their fewer advantages, with their restricted means of communication and transportation, with their few hand tools and all the handicaps of a new industry in a new country, when every man had to solve his own problems with little or no help from outside, were able to get the results which our fathers secured, there is heavy responsibility on the younger generation to "make good" in a pronounced measure. If the young farmers with all the aids at their disposal "make good", as did the older men, in proportion to their advantages, we shall have no reason to be ashamed of the American farmer. The responsibility rests on the young farmer to improve the means at his command. To meet the demands and to adjust himself to the new methods of farming, the young man must see clearly and think straight; he must have good executive ability, as well as training and practice in well-defined business methods. He must know his business in all its details. But to know is not enough; the ability to execute must be joined to the knowledge, and executive skill is acquired only through hard experience.

The character of farming is changing rapidly. It is coming more and more to be an efficient, profitable, and attractive business. With the lessened fertility and increased demands and competition it is becoming a difficult business. It has been an easy business to skim the surface of our farms. The time has now arrived—and we have all noted the alarm with which some of our most far-sighted men view the situation—when we must expend our best thought and energy to feed and clothe our own people from lands that are no longer new. Rule-of-thumb methods will be forced out, and only the well-informed and efficient-thinking man, that is, the trained man, can succeed.

The prosperity of our farming districts and states is not alone in demanding the scientific training of our future farmers. The welfare of our cities and of our great manufacturing states is dependent upon our agricultural prosperity. It would be of inestimable value to the employees in large factory towns, for example, if the unproductive farms with which many states are still dotted could be made productive and economica ly valuable. City conditions everywhere would be materially bettered by inincreased productiveness of the sur-

rounding country, which can readily be brought about by a better training of its owners and tenants as to how to deal with their land. An interesting illustration of the success of the trained man in the poor farming districts of the south is given in one of the Leaflets issued by the Tuskegee Institute in Alabama, which tells how Mr. G. W. Carver, instructor in agriculture in Tuskegee Institute, raised 266 bushels of sweet potatoes on one acre of land with a net profit of $121, while the average yield in the vicinity was 37 bushels. Such a result must have a far-reaching effect on the farming in the community. In New York State, one of our Cornell boys, on six acres of apple orchard, cleared 100 per cent on his money last year after deducting every item of expense and even charging the orchard's share of taxes against it. It is the coming into the community of the trained man, who applies as searching and as diligent methods to his farming as the merchant does to his business or the broker to the handling of his bonds.

The scientifically trained man has the advantage over the man not so trained by knowing the reasons "why". Our fathers recognized the usefulness of many an important farm practice without knowing why it was valuable. They knew a certain practice brought a certain result, and they applied the practice. That was all there was to it. Now the investigator with special means at his command works out the reasons, and with these reasons in hand is able to control the conditions to bring about the given results most effectively and most certainly.

If we read the signs aright, the very near future will see a great rise in the value of farm lands in New York State, and the less productive lands will assume relatively greater importance. All over the state there has been taking place a readjustment of farming systems, and farming practices are becoming adapted to the local conditions. The trained man, who has been given an opportunity, impossible for his father, to see these various factors and to know what types of farming are profitable under the peculiar climatic, soil and other conditions in a given region, has a great advantage and can be saved many a costly mistake. He will know how intelligently to choose a farm for the purpose he has in mind and to get one that is a little better situated than any other for the type of farming he wants to conduct. The fact that he has these advantages not enjoyed by his father is his good fortune and no reflection on the skill of his father. It is the accumulated experiences of the fathers reenforced by the discoveries of the expert investigator and placed at his disposal.

With this readjustment and with the application of well-directed energy there is money in farming, a good, comfortable income. The opportunity for the young man in farming is unmistakably there. We feel the indications of this at Cornell, when we receive 80,000 to 100,000 letters in a year, many of them from farmers asking very pertinent practical questions; and almost daily there are calls for trained men to fill good positions. The College is unable today to recommend men to fill the available positions as farm managers, herdsmen, nurserymen, gardeners, poultrymen, butter and cheese makers, teachers of agriculture in schools and colleges, and the like. This past summer we had a number of $1500 teaching positions and could not find men to take them. The majority of the graduates fitted to teach saw greater opportunities in practical farming and the salaries went begging.

It has been commonly said that colleges of agriculture educate away from the farm. Six years ago we gathered statistics as to the occupations of our former students from Cornell and found 71 per cent back on farms or in other practical agricultural occupations when they had no farms of their own. Twenty per cent more were teachers of agriculture and in government agricultural positions.

DRY FARMING

By L. H. Bailey

EDITOR'S NOTE.—This article is a reply to the request made to Dean Bailey by John T. Burns, Secretary-Treasurer, Dry Farming Congress, for a statement of his attitude toward the dry farming movement.

I AM convinced that the subject of dry farming has direct application to eastern as well as to western conditions. Of course, the movement is necessary and therefore worth while in its western applications alone, and in its bearing on the welfare of those regions it should appeal to all the people; but it also has a bearing on agriculture in the entire country such as our people do not yet understand.

We habitually associate "dry-farming" with dry regions; but the conservation of water lies also at the foundation of agriculture in most humid regions as well as in semi-arid regions, for the crop in humid regions is very generally determined by the pinch of the "dry spell" or drought. As the strength of a wall is measured by its weakest course, so is the crop-producing power of the year determined, under prevailing farming methods, by the poorest or least effective growing month.

Farmers in the semi-arid regions are compelled to save the rainfall, and they prepare a definite program of conservation, making this program a part of their reckoning. But the farmer in humid regions usually makes little or no allowance or reckoning for drought, and when it comes he is caught; and yet the drought and not the rainfall determines his crops. We shall never have a good agriculture until the farmer prepares for dry times and drought just as consciously as he prepares for winter. The "dry spell" of summer is usually considered to be a calamity: it is probable that a properly regulated system of husbandry would make such spells to be advantageous.

The annual precipitation at Ithaca, in Central New York, is approximately 33 inches; yet there is record of a year with a rainfall of only 21.20 inches. The average recorded yearly rainfall for the State of New York ranges from 51 inches down to 28½ inches, and if we exclude Long Island with its more uniform precipitation, the minimum becomes about 26½ inches, or approaching closely to dry-farming conditions. There are parts of the State in which the mean precipitation over a series of years is under 23 inches. I have before me the records for 48 years of one Station in Western New York, with an annual average of 27.52 inches, in which there are four years with a total precipitation of less than 20 inches (one year only 16.44 inches), and two years with a total of 20.02 and 20.61. Were it not for other aids than rainfall of the particular year (there is probably a low evaporation due to proximity of large bodies of water, and water is held in the soil from other years), this would be a semi-arid place; for a region is usually held to be semi-arid if its precipitation is less than 20 inches.

It is the precipitation of the "growing months," however, that largely determines the crop. In the dry section just mentioned, there are 26 years of the 48 in which the monthly rainfall was less than 1½ inches (which is very dry) in one or more of the months of May, June, July, August; and there are 10 other years in which the rainfall in one or more of these months was between 2 inches and 1½ inches (which usually indicates droughty conditions). Even at Ithaca with its mean precipitation of about 33 inches (and a maximum of about 46½), there are 17 years out of 53 in which the rainfall was less than 1½ inches in one or more of these four growing months, and 14 other years in which it was less than 2 inches, making 31 years in the 53

(or about three-fifths of the years) in which droughty conditions prevailed. Even in a section in Western New York with a mean annual precipitation of 44½ inches and a maximum of 59½, there were 5 years out of 20 in which the rainfall was less than 2 inches in one or more of the four growing months. If to these four main growing months, were added April and September, all the foregoing figures of droughty conditions would be more marked.

Of course, the figures of rainfall cannot of themselves establish the presence of droughty conditions, or several other factors are involved; but they are the best measures that we have on record. It is certainly not too much to say that in most parts of the humid regions, the farmer may expect conditions of dryness about every other year sufficiently marked greatly to reduce his yields. We are accustomed to hear estimates of the loss occasioned by injurious insects and by diseases of animals and plants; but it is probable that the loss from "dry spells" greatly exceeds any or all other causes. Humid regions are likely to suffer most from dry weather.

Nor is it merely a question of carrying the crop over the recognized dry spells. A sufficient supply of soil moisture continuously throughout the year is a fundamental necessity of crop-growing. The acre-production must be made to increase, which means that we must be increasingly careful of our water-waste.

In the hard-land hilly regions of the East, it is not only a question of the actual quantity of water falling on the earth, but quite as much the loss of the water by rapid run-off. Within a few minutes after a heavy rain, the stream are choked and the lowlands fill up and perhaps overflow. The water is lost to one place and is accumulated in too great quantities in another place. The violent run-off is like water running from a roof. It tears the land, moves stones and other heavy objects, and carries away an immense store of fertility. Within two or three days after a heavy rain, the sides and tops of hills may be suffering from dry soil. Many of the hills of the humid Eastern States are unproductive or even sterile because they are dry. I see as much disaster from drought in New York as I see in the less humid regions of the middle west.

The discussions of the Dry-Farming Congress, therefore, should have significance to the entire country. We shall find the principles of dry-farming to be increasingly applicable to the East. In fact, these principles have been worked out in humid countries. But the present recognized methods of dry-farming are not sufficient for hill-regions, and something further must be developed. The accepted practices of dry-farming are associated with two main ideas: such preparation and tillage of the land as will catch and hold the rainfall; the perfecting of such a cropping-scheme as will make the most of the situation. These are fundamental to all water-saving practices. To these methods may be added the supplying of water, other than that of rainfall, by means of irrigation. But beyond all this, we must in time devise some mode of storing the water of rainfall on the hills of individual farms.

Many of the hills cannot be tilled with profit, certainly not by dry-farming methods; nor is it advisable to cover all of them with forest or even with other cover,—and even a crop cover could not hold the water. A method or "system" of storing water on steep hillsides was perfected and even patented by Asahel N. Cole, of Southwestern New York, in 1884, and it was made the basis of his book called "The New Agriculture." It consisted of a series of ditch-reservoirs running along the face of the hill, connecting with each other, and filled with stones and covered with brush and earth. These trenches were to catch the run-off and to hold it against the time of drought. Whether such a system is practicable, I do not know; but it is suggestive of a solution, perhaps in

simpler and less expensive form, of a very real problem in hilly regions. It is a problem of farm engineering. We must make the most of our hills, in time.

Irrigation and dry-farming are complementary processes in the problem of saving and utilizing water. Dry-farming practices are essential to the best results after irrigation water is secured. Irrigation will certainly come in the East; but it is first necessary that we save and utilize the water that falls on any farm.

I hope that the Dry-Farming Congress will be successful, and that it will be held to a scientific and non-partisan discussion of the problems involved; and I hope also that its meeting-places in the future will not be withheld exclusively to the West.

THE NEED OF LEADERSHIP IN THE WORLD

By Joseph E. Wing.

THERE resides in the heart of every man a desire to do good things, to do brave things, worthy things. There is not one of us who would not like to be good, be strong, be brave, be a hero. Why do we not achieve more good? Why are we not braver, stronger; why do we not live richer lives than we do? It is because we wait for leaders. Man alone is timid, afraid; he loves ease and pleasure. He may feel that there are great things to do in the world, great truths to stand for, great battles to fight, a standard of right living to be lived, and yet he does none of these things. He lacks a leader. There are a thousand of us who will follow a leader almost anywhere but few of us who will set out alone on perilous quests or essay to fight battles with no strong captain in lead.

The world is full of examples. Once Israel's army sulked in their tents, the enemy exultant surrounding them; they feared, they had no faith, no courage, they lacked a leader. When the leader came they awoke, arose and won a mighty victory. Once the armies of France were beaten, the king dismayed, despondent, without hope. The enemies of the land occupied almost every town. Then appeared a simple hearted girl, the Maid of Orleans, Joan of Arc, she came as a leader, believing that she was sent from God to help her people. She came and said to the discouraged armies, "you are not beaten, you have not begun yet to fight. Follow me." And following her they swept the foreign armies before them as the wind drives the chaff. A leader was what they wanted. Once Phil Sheridan was 20 miles away from his army and the army was attacked by what seemed an overwhelming force. After a time that army, always victorious before, began its retreat and soon the retreat became a panic, the army was fleeing for its life. Then Sheridan came, conscious of power, knowing well what his men could do, he rallied the men, they stood their ground, he led them against the enemy, the flying army became a rock, against which the confederate force beat in vain, it became all at once instead of an army flying in defeat a victorious army in full pursuit. The leader had come. There was no more power, no more men or guns, but the leader had appeared.

Today there is need of leadership as much as ever there was in the world. We are at the parting of the ways. Men are saying now "the old teachings do not count today, the ten commandments are old fashioned, it is right to live for pleasure; the one who wears the best clothes, who eats best food and rides in the finest automobile, he is the greatest of us, the one whom we should follow." These are false prophets, leaders who will lead us into the wilderness and leave us there. It is true that we live in fortunate times when nearly all men can have enough to eat and good raiment to wear and some of us can ride in automobiles but these

things do not make the man a man; do not help much in making him what he may be; do not lift his soul up above his body, above the material things of earth and make him a part of God. For that we need leaders like Elijah, we need prophets and leaders as much as ever the world needed them. There is still slavery in the world. There is still slavery to the mine, to the mill; there are tyrannical masters who ride in automobiles while their slaves, industrial slaves, wear their lives out in stifling workshops. This industrial slavery is one of the things to fight against. Then there is the ever present warfare within every man's soul, the struggle between his better and his worse self. Always, in every age, that has been the greatest struggle, the war that never ends. We are not afraid of "hell fire" any more but yet there remains the gulf between what man may be and what he is, as wide as the old conceptions of Heaven and Hell. How to live up to your higher self, how to develop the God spirit that comes to you, that whispers to you and seeks to develop in you a higher, nobler, happier, more unselfish life, that is the greatest battle today, as it always was. And in this we need leaders. And here every one of you is concerned. Every one of you is a leader to some one else. You can not live your life alone. Assuredly others are influenced by you. You can not walk down the street that you do not leave the men whom you pass better, or worse, for having met them. You shed off an influence of one sort or another. There are men who always make me a better man, just to meet them. There are men who make me a worse man.

There is one thing about every great leader who has lived in the world, he has felt that he himself was led by some higher power. Elijah led Elisha because Elijah had no doubt that he was led by God. Joan of Arc led the armies of France because she was sure that she was led by angels of God. Who shall say that either of these were mistaken? Abraham Lincoln led the armies of the United States and all the people of the United States through the most bloody war that the world has ever seen, never dismayed, never doubting that he was doing right, because he felt a sense of Divine leadership that told him to go on. Can you feel that sense of Divine leadership? Can you do right because it is right and because you are unwilling to mislead those who trust you, who look up to you, who are led by you? Are you willing to consecrate yourself to a great cause? If so, many will follow your lead. What great cause remains for you to so consecrate yourself? Is there any greater cause, was there ever any greater cause than now, to lead young men and young women to live clean lives, unselfish lives, heroic lives, to lead them to walk vigorously, yet humbly, straightway in the path of what is good, stern and unrelenting in denouncing of what is evil; serene, friendly, helpful, loving to comrades, leaders, each one of those younger, weaker, following them? Was ever there any greater cause than that? Know, then, that each of you may be a leader, that the world needs you to be a leader, that God needs you to be a leader and that if you will live as you may God's likeness will so shine out of your countenance that like Elijah of old as you pass by, other young men and young women will leave all and gladly follow you.

To fit yourself for this leadership you must learn to live aright. Sometimes you may be tempted to do this wrong act or the other wrong thing, you may reason "it does not much matter whether I do this or no" but stop, consider the effect of your life on the ones you are leading. If you live clean, if you stand straight, if you are honest, if you measure up as well as you can to the measure of perfect manhood, then all who see you will be cleaner, stand straighter. be more honest just because of you, You cannot afford to let down you must not show the white feather, you must be brave and true and fearless, must dare to live and to live aright because you are leading others and your duty is towards them.

The Cornell Countryman

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OCTOBER, 1910

Greeting

At the beginning of a new college year the COUNTRYMAN desires to extend a word of greeting to all its friends, both new and old.

We wish to thank the faculty for their sincere interest in our welfare and the spirit of ready helpfulness which they have always exhibited towards us. We feel sure of their support.

The old students we welcome back as old friends and only wish to express the hope that you will get a little closer to us in this coming year than you have ever been before. Give us either your criticism or commendation as we may deserve, but above all, give us your help. Not only subscribe and insist upon your friends doing likewise but contribute to our numbers yourself. Come in and talk things over and give us the benefit of the excellent suggestions which we feel sure you have stored up. Look on the CORNELL COUNTRYMAN not as the publication of the eleven men who compose the board but rather as it is, the publication of the College of Agriculture, for which every one of you is in a way responsible.

To the students who enter Cornell University this fall for the first time the COUNTRYMAN extends its heartiest welcome. We are going to count on your enthusiastic support from the time you enter here until you finish your course, for without such support our publication cannot exist. First, we expect you to put your name on our subscription list and then we expect you to join the competition for the editing or managing staff of the paper and work.

Dean Bailey

After a year's absence Dean Bailey resumes this fall the task of directing this College of Agriculture. We, the students and faculty of the College, extend him our heartiest welcome.

After a year's diversion we hope he has returned greatly refreshed and with even greater enthusiasm, if that is possible, for the great work which he is carrying on here. In passing we must express our appreciation of the steadfastness with which Dr. Webber as Acting Director upheld the policies of Director Bailey.

Dean Bailey is known throughout the world as the leader in country life affairs, one great recognition of his ability being his appointment by Ex-President Roosevelt to the Chairmanship of the Country Life Commission. It is our wonderful good fortune that Dean Bailey has decided to remain our Dean instead of leaving for other phases of country life work. To show our appreciation let us be ready to further at all times the principles for which he stands and make our Dean feel, as he has in the past

that in whatever he undertakes he has our whole hearted support.

With Dean Bailey to lead we are confident that nothing can hold us back and that this college will not only hold its place as first among the Agricultural Colleges of the nation, but that we shall continue to grow and disseminate our teachings throughout the country until the whole world will look to New York State and its College of Agriculture at Cornell University for direction in every advancement in agricultural training and for the solution of its country life problems.

Governor Hughes

On October 6th, Governor Hughes gives up his position as Governor of the Empire State to become a justice of the Supreme Court of the United States. With the retirement of Governor Hughes from active participation in New York State politics the College loses one of its staunchest upholders.

All through his four years of service Governor Hughes has shown sincere friendship and regard for the welfare of this College. During his administration, the maintenance appropriation of the College has been increased, making it possible to extend our facilities somewhat in proportion to our rapid increase in registration; also due to his foresight and interest in the agriculture of the whole state additional appropriations have been secured for extension work.

Governor Hughes latest, and probably greatest act for our welfare was to sign the bill giving an appropriation of $357,000 with which to enlarge the College. This appropriation makes possible the erection of three new buildings.

Outside of the benefits which we have received as members of the staff and student body of this College, we have all benefitted by the stand which Governor Hughes has always taken for what was right, regardless of opposition or consequences to himself. He entered politics at a time when the state was ruled by party bosses, being the only one of the Republican candidates to be elected. This was one of the greatest personal triumphs in our political history. He leaves with the political atmosphere much cleaner and purer because of his action and example.

The CORNELL COUNTRYMAN extends to Governor Hughes the heartfelt appreciation of the New York State College of Agriculture for the very great assistance he has rendered us. We wish him the greatest success in his new field of work.

GENERAL AGRICULTURAL NEWS

A Farm Bureau has been established as a permanent department of its work by the Binghamton Chamber of Commerce. This resulted from several conferences on the subject between Dr. J. W. Spillman, Chief of the Office of Farm Management of the Department of Agriculture at Washington, R. A. Pearson, Commissioner of Agriculture of the State of New York, Dr. H. J. Webber, Director, and other members of the faculty of the New York State College of Agriculture at Cornell University.

Development work of this nature has for several years been an acknowledged part of the work of commercial organizations in the south, middle west and western states; but the Binghamton Chamber of Commerce has been the first strictly eastern organization to direct a large part of its attention to the development of agricultural resources adjacent to the city whose business interests it is organized to serve.

Since its organization, the Binghamton Chamber of Commerce has been content to look after the credits and the interests of the retailers, wholesalers and manufacturers within the city limits; but it has recognized that the farming industry is the largest and employs the most people of any industry in the section and that it deserves attention accordingly.

The Bureau will be practically recognized by the Government Department at Washington, the State Department at Albany and the State College of Agriculture in all work undertaken in farm development in the section tributary to Binghamton.

The Bureau will be under the direction of a graduate of one of the leading agricultural colleges of the country who has had four years of actual farm experience in addition to his education.

Under the direction of the State College of Agriculture a complete Farm Survey of the territory will be made which will lay bare the problems requiring attention. When this report is presented the Bureau will then direct its efforts along the lines suggested by the survey.

The Bureau will operate for a few months without cost to the farmers a Cow Testing Association for demonstration purposes. It is expected that through this work the average production of the cows in each dairy will be raised so that the farmers will see the advantages of such an Association and organize and maintain these Associations themselves.

Under the direction of the United States Government Office of farm management, the Bureau will conduct an experiment on lands in the section known as hill farms for demonstration purposes; it being the claim of the Government Department of Agriculture that the hill farms surrounding Binghamton are ideally located for production of large crops, especially potatoes; with proper crop rotation, good cultivation and fertilization.

Agencies are being established in Scotland, Holland and Sweden whereby the emigrants from those sections desiring to settle on the farms will be given either positions or furnished with an opportunity to reach farm land in the Binghamton territory.

* * *

Whosoever wants to know may ask and receive the freshest and most accurate information through the I. H. C. Service Bureau, recently established by the International Harvester Company of America.

Not only is the bureau designed to assist the farmer in a solution of his many and varied problems, by answering directly questions regarding soils, fertilizers, rotation of crops, climatic conditions, irrigation, etc., but the aim is to give assistance to students of agriculture, to the agricultural trade, and general press, and to carry on a wide and popular campaign of education.

News and agricultural data will be furnished the press and special articles will be prepared upon request of editors. Photographs of mach nes and agricultural products may be had for

the asking. In short, editors, teachers, farmers, and others will find the bureau ready and willing to answer any and all questions promptly and without charge.

Schools and agricultural colleges will be loaned lantern slides, as heretofore; but this service has been greatly enlarged and made more complete.

Illustrated lectures, presented by interesting lecturers, on subjects of general agricultural interest, are now being offered state and county fairs, land shows, farmers' institutes, teachers' institutes, Granges, Chautauquas, etc.

The only cheap thing about these lectures is the price. They are free. Beautiful colored slides and moving pictures have been made specially for the lectures, and no expense has been spared to make them as complete and entertaining as those for which a fee is charged.

* * *

There were in connection with the National Dairy Show two successful students' contests in judging dairy cattle. These contests have already resulted in much good for the dairy industry. It now gives us great pleasure to announce that the contest will be held again in connection with the Dairy Show, October 20 to 29, 1910; and that, in addition to the trophies usually awarded, the American Jersey Cattle Club and the Holstein-Friesian Association of America have each offered a scholarship to the student winning first place in judging the breed in which the association is interested.

For each of these scholarships four hundred dollars ($400) has been provided by the club, to be used for a post-graduate course in Dairy Husbandry, to be taken in some recognized agricultural college. These cattle clubs are trying these scholarships for one year as an experiment, and if they are pleased with the results, we hope and believe that they will continue to offer them.

Every dairy instructor and dairy student in the country should appreciate this liberal offer as a recognition on the part of the clubs that what the dairy industry needs most is more trained men. That the clubs are benefited by anything that tends towards general development of the industry is of course due to the fundamental part that pure bred cattle play in the industry.

The Ayrshire Club has not had an opportunity as yet to consider this plan; and the Guernsey Club, because of other lines of work recently inaugurated, is disinclined to take hold of the matter just at this time.

An annual scholarship representing each of our leading dairy breeds is what we are after, and our chances for getting them depend on the results of this experiment. Can not the students' judging contest at the next dairy show be made the greatest educational feature of the kind that has ever been heard of? If so, there should be judging teams from at least twenty agricultural colleges.

* * *

The recent widespread discussion of the high cost of living has aroused great interest in all phases of domestic science, and has greatly increased the demand for the publications of the Department of Agriculture on all subjects relating to food and nutrition.

The Department has recently issued a set of 15 charts on the composition of food materials; these charts are printed from photo-lithographs in six colors, and show in the case of each material the protein, fat, carbohydrate, ash, and water contents and the fuel value expressed in calories. The percentage composition and fuel value are given in figures and the relative proportion of each constituent is represented graphically. For example, in the case of whole milk a glass of milk is shown; 87 per cent of the figure is colored green to represent the water content, 3.3 per cent red to represent the protein, 4 per cent yellow to represent fat, 5 per cent blue to represent the carbohydrates, and 0.7 per cent drab to represent the ash content. The fuel value of 310

calories per pound is represented by printing in solid black nearly one-third of a square one inch on each edge, since one square inch represents, 1,000 calories. The figures given for the percentage composition of the various materials are average figures based upon as many analyses as are available in each case.

Chart 14 gives the functions and uses of food under the headings, "Constituents of food" and "Uses of Food in the Body." Chart 15 shows the dietary standard for a man in full vigor at moderate muscular work and the estimated amount of mineral matter required per man per day.

These charts are printed on sheets 21 by 27 inches of a good quality of paper, and are for sale by the Superintendent of Documents, Government Printing Office, Washington, D. C., at $1.00 per set. The charts will be found especially useful to instructors and students in classes in physiology, domestic science, and other branches in which the food and nutrition of man is studied, either in schools or colleges, or in clubs or similar organizations.

* * *

The last National Dairy Show introduced a new class into its premium list, which promises to become an important factor in the dairy cattle world. This was the class "Cows any age having official yearly records." There has been the feeling on the part of many that there are two classes of pure-bred dairy cattle: Those which win in the show ring, and which might or might not be profitable producers of milk or butter; and a class which are profitable producers but could not hope to win in the show ring because they lack fancy points which the up-to-date judge must require.

While not satisfied that it had fully solved the problem, the management of the National Dairy Show made the start by including the new class in its premium list. It was judged according to the following rule:

"In awarding the premium in Class 12 (cow with official yearly record), the judge shall assign each entry a definite number of points for conformation on the basis of 100 for perfect; to this shall be added one point for each twenty pounds, or fraction thereof, of butter fat above 250 for a two-year old, with an additional minimum requirement of one-tenth of a pound for each day the heifer is over two years old, up to a total of 360 pounds minimum requirement for the mature cow. Only such records shall be accepted as are certified to by the secretary of the registry association as having been made under the supervision of an experiment station or agricultural college, as required for official or semi-official tests. A cow scoring less than 87 on conformation shall not be awarded a premium."

In each breed the respective score card of that breed was used as a basis for judging conformation. In the judgment of the writer the minimum score of 87 on conformation should be lower.

To the surprise and gratification of all interested, this class brought out a goodly number of entries in the Guernsey and Jersey breeds, there being 17 entries in the former and 8 in the latter class.

It has been argued that this class was not practicable because of its interruption to its records in progress. However desirable it may be to repeat records, most breeders having gotten their cows in the official list with a year's creditable record, do not repeat and therefore having completed a year's record, their appearance in the show ring, fresh within a reasonable time, is excellent evidence that their year's record has not hurt them, if with this record they combine high individual excellence. The appearance in this class of the world's record Jersey not only hale and hearty at twelve years of age but who actually freshened during the show, was evidence of the correctness of this contention.

CAMPUS NOTES

Since the last issue of the COUNTRYMAN appeared, there has been a few changes in the staff and organization of the College which will be of interest to our readers. The most notable achievement, and one which we have long anticipated, was the establishment of a Department of Forestry. At the time this issue went to press the head of the Department had not been announced. It is confidently expected, however, that instruction in forestry will be offered this year.

Another important change which is in line with specialization in the College, was the separation of Pomology from the Department of Horticulture, and the creation of a Department of Pomology with Professor C. S. Wilson (promoted from assistant professor) in charge. Professor Tuck was promoted from an assistant professorship, and Secretary Mann was advanced to a professorship with the title of Secretary, Registrar, and Professor of Agricultural Editing. Mr. W. M. Wilson, in charge of the Weather Bureau, was given the title of Professor. E. S. Savage was advanced from instructor to assistant professor of Animal Husbandry. Professor Judson withdrew from the teaching work to give his attention to investigations, and A. C. Beal a graduate student, will assume the details of the work in Floriculture. Paul Work, of Pennsylvania State College, succeeds as instructor and investigator in Olericulture, Mr. L. D. Batchelor who resigned to accept a position as head of the Department of Horticulture in the University of Utah at Logan. The Department of Home Economics was strengthened by the addition of Mrs. Helen B. Young as instructor. There were a number of assistants added to various departments, as follows: R. J. Gilmore, assistant in Biology; G. R. Hill, assistant in Plant Physiology; H. W. Anderson and C. T. Gregory, assistants in Plant Pathology; Sara M. Bailey, assistant in Home Economics; L. M. Hurd, assistant in Poultry Husbandry; W. W. Fisk, assistant in Dairy Industry; and R. A. Mordoff, assistant registrar.

* * *

Immediately after the close of his work at the State Fair, Professor C. S. Wilson, accompanied by Mrs. Wilson, left for a trip to Washington and Oregon to study some of the western fruit harvesting and marketing methods. Prof. Wilson will give particular attention to apple packing.

* * *

Acting-Director Webber and Professor Rice were in attendance at the Graduate School in Agriculture at Ames, Iowa, during the summer, and delivered lectures. Prof. Rice remained for the full session.

* * *

During the early part of the summer Instructor and Mrs. Guthrie took an extensive trip through the central west, getting as far south as Oklahoma.

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A small but exceedingly useful little volume entitled, "Laboratory

Exercises in Farm Management," by G. F. Warren and K. C. Livermore, has recently appeared.

* * *

A real estate epidemic has attacked the staff of the College of Agriculture this summer with the result that Assistant Professors W. A. Riley, Crosby and Love have built themselves homes. Mr. Savage has purchased a home, and Assistant Professor Ross, Miss Rose and Miss Van Rensselaer have purchased lots for building. Dr. Webber has made extensive alterations on his house.

* * *

Assistant Professor Love's home has been invaded by a very small daughter since we saw him last.

* * *

Mr. G. E. Burnap, of the Department of Rural Art, has resigned his position to accept a very important appointment in connection with the park system of Washington, D. C. The COUNTRYMAN wishes him success in his new work, for which he is eminently well fitted.

* * *

Toward the end of the summer the new greenhouses were turned over to the College for use. They have been very much needed, and will add greatly to the efficiency of the teaching and investigation of the departments concerned.

* * *

Our Dean Bailey is constantly in demand to take the leadership in some new public service The latest distraction has been the use of his name in the public press as the candidate for the National Congress from this district. In reply to the newspaper agitation, he very characteristically states his well reasoned position as the representative of the farmers of New York State:

"I am not a candidate for Congress or any other office. I intend to exercise what capabilities I may have along different lines, and I will never violate my trust with the farmers by dragging their issues to the political arena."

Prof. Publow of the Dairy Department has resigned and is now in commercial work in Canada. Mr. W. W. Hall will take charge of the instruction in cheese making this term Mr. Hall gave all cheese teaching here for many years but was forced to retire two years ago on account of ill health.

* * *

A new steam sterilizer has been added to the market milk room. A new four-horse boiler and engine has also been installed to demonstrate the type of boiler suited for creamery work. Some necessary equipment has been added to the farm dairy room.

* * *

The following men from the Dairy Department acted as judges at the New York State Fair at Syracuse: Prof. Publow, judge on cheese; Prof. Guthrie, judge on butter; Prof. Stocking, judge on milk and cream; Mr. Ayres, judge on butter scoring contests.

* * *

The exhibit of the Dairy Department was shown at county fairs at Whitney's Point, DeRuyter, Boonville, Warsaw, Watertown, Greene, Syracuse, Ogdensburg, and Binghamton.

* * *

The Intercollege regatta held last Decoration Day on Cayuga Lake, after the Junior Varsity race between Cornell and Pennsylvania, resulted in a victory for the crew of the College of Agriculture. The race was well rowed, the absence of splashing and "crab catching," so prevalent in former years, being especially marked. Great credit is due to our crew for their hard consistent work which resulted in the capture of the much coveted crew trophy

* * *

By the signing of the bill by Governor Hughes the College of Agriculture received an appropriation of $357,000 to be used in the extension of the College. The bill authorizes the construction of a building for general

class room and laboratory purposes, including an auditorium at a cost of $113,000, a poultry husbandry building to cost $90,000, and a home economics building to cost $154,000. At present writing the sites for these buildings have not been definitely decided upon.

* * *

Of the eight men who rowed on the victorious freshmen crew at Poughkeepsie last June, five are students of this College—E. S. Bates, J. H. Munn, C. H. Elliot, E. H. Dole, stroke; B. L. Crandall, coxswain.

* * *

The nine members of the advanced Stock Judging class, accompanied by Professor Savage, judged the livestock at the Chemung County Fair held at Elmira, Sept. 19–24. Three members of the class also did judging at the Mansfield Fair, Mansfield, Pa.

The members of the Advanced judging Class are now competing for a place on the team, consisting of three men who will judge in the contest at the National Dairy Show at Chicago, October 20–29.

* * *

Professor A. W. Gilbert of the Department of Plant Breeding was married on June the eight last, to Miss Susan Grace Cooper. The wedding took place at the bride's home in Lansing, Michigan. Mr. and Mrs. Gilbert are now living in the Wycoff apartments on Fall Creek Drive.

* * *

Acting Director Webber has received from Governor Hughes a draft of the bill giving the College of Agriculture an appropriation of $357,000 with which to erect three new buildings. Accompanying the draft was the pen with which Governor Hughes signed the bill. These will make a valuable addition to the trophies of the College.

FORMER STUDENTS

'02, B. S. A.—On Sept. 3d, Mr. Ralph W. Curtis, '02, and Miss Allie Myrtle Pettigrew were married at Jamaica Plain, Mass. They spent their honeymoon down on the Massachusetts coast. Mr. Curtis has an important position at the Arnold Arboretum of Harvard University. His host of Cornell friends extend to him and Mrs. Curtis, heartiest good wishes.

'07, B. S. A.—E. C. Ewing of the United States Bureau of Plant Industry is now engaged in bionomic investigations at Victoria, Texas.

'08, B. S. A.—William E. Harries has been temporarily appointed landscape architect in charge of the physical aspect of the New York State Reservation at Niagara Falls. His address is State Reservation, Niagara Falls, N. Y.

'09, B. S. A.—Frank E. Wurst was married to Miss Dora Pauline Warner, daughter of Mr. and Mrs. Wendell C. Warner, of Springville, N. Y., on June 8.

'09, B. S. A.—Edna M. Jenkins was married on June 23d, 1910, to Mr. A. D. Hoose at Duane, N. Y., where they are now at home.

'10, B. S. A.—F. B. Kelly has resigned from his position as manager of a fruit farm at Covert, N. Y., and is now connected with a nursery in his home town, Newark, N. Y.

H. S. Jackson, A.B., '05, has been appointed Professor of Botany and Plant Pathology in the Oregon Agricultural College, Corvallis, Oregon. Mr. Jackson was for three years Assistant Plant Pathologist in the Delaware Agricultural College Experiment Station. He was Fellow in Botany at Harvard University in 1908–1909. During the collegiate year of 1909–1910, he has been Assistant in Plant Pathology at the Oregon Agricultural College Experiment Station.

'08, B.S.A.—Vincent Phelps, who owns a large fruit farm near Kingston, N. Y., was married on July 14, 1910, to Miss Belle Louise Andrews, at the home of the bride's parents in Middle Hope, New York.

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SUBSCRIPTION PRICE, $1 00 PER YEAR

Entered as second class matter at the Post Office Ithaca, N. Y.

Courtesy Department of Poultry Husbandry.